

REMARKS

Claims 9 and 10 are the claims pending in the present application. Claims 1-8 and 11-16 were withdrawn from further consideration pursuant to the Response to Election of Species Requirement filed April 7, 2006.

The objections and rejections are traversed, as discussed below.

Claim Objections

Claim 9 has been objected to for informalities. In particular, the Examiner contends the term “monotonously increases” is not defined by the specification and the usage appears contradictory to the generally accepted meaning.

As amended, claim 9 recites, in part, “the nip pressure in the nip portion is distributed along the nip portion in a direction of transport of the recording medium such that pressure applied to the recording medium increases from a inlet side nip pressure at the inlet nip portion to an exit side nip pressure, which is higher than the inlet side nip pressure, at the exit side of the nip portion.” Applicant notes that the above feature is supported at least by Figure 10 and page 26 of the disclosure as originally filed. Accordingly, reconsideration and withdrawal of the objection is requested.

Claim Rejections - 35 U.S.C. § 102

Goto

Claims 9 and 10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Goto *et al.* (JP Pub. 60-151681). Applicant respectfully traverses and submits that Goto fails to suggest all the features of these claims, as evidenced by the following.

Claim 9 defines a fixing device comprising, *inter alia*, a heat contact member arranged to be able to contact one side of a recording medium while heating the one side of the recording medium on which side an unfixed toner image is carried, the toner image formed with a liquid developer including a toner dispersed in a carrier liquid; and a pressing member pressing on the other side of the recording medium for pressing the recording medium against the heat contact member, the fixing device operating to fix the unfixed toner image to the one side of the recording medium by passing the recording medium through a nip portion defined between the heat contact member and the pressing member.

As further defined by claim 9, the pressing member includes: two nip rollers positioned at an inlet side and an exit side of the nip portion respectively and adjoining the heat contact member; an endless belt run about the two nip rollers and capable of moving in a cycling manner; and a spring strongly pressing the exit side nip roller against the heat contact member, and establishes the nip portion by holding a part of an outside surface of the endless belt in pressure contact with the heat contact member; wherein the inlet side nip roller has a *lower pressing force* for pressing the endless belt against the heat contact member than a pressing force of the exit side nip roller for pressing the endless belt against the heat contact member. Claim 9

additionally recites the feature of the nip pressure in the nip portion is *distributed along the nip portion in a direction of transport* of the recording medium such that pressure applied to the recording medium *increases* from an inlet side nip pressure at the inlet nip portion to an exit side nip pressure, which is *higher than the inlet side nip pressure*, at the exit side of the nip portion.

By virtue of the claimed configuration, the fixing device has the features of a **nip pressure** at an inlet side nip portion *being lower* than that at an exit side nip portion and a **pressure distribution along a nip portion** having a pattern as illustrated in Figure 10 of the Specification, i.e., the nip pressure in the nip portion being *distributed along the nip portion* in a direction of transport of the recording medium such that pressure applied to the recording medium increases from an inlet side nip pressure at the inlet nip portion to an exit side nip pressure, which is higher than the inlet nip pressure, at the exit side of the nip portion.

Applicant respectfully submits that Goto fails to disclose at least the above features of claim 9. For instance, Goto teaches that the size of a printing device can be reduced and wrinkling of copy paper can be reduced by provided pressure rollers that wind an endless belt around a fixing roller and press the belt. However, in the arrangement of Goto, Goto simply teaches that more press-contacting force is applied from a downstream side roller than from an upstream side roller. *See* Goto English Abstract. However, Goto does not disclose any *nip portion* having the claimed characteristics, but rather discloses an arrangement in which an endless belt 15 extended between a press-contacting roller 11 and an auxiliary roller 13. Goto does not disclose nip pressure increasing from the inlet side nip pressure to the exit side nip

pressure, which is higher than the inlet side nip pressure, at the exit side nip portion, such as would have a pattern as illustrated in Fig. 10 of the present application.

Thus, Applicant submits that Goto fails to teach or suggest all the features of claim 9 and reconsideration is respectfully requested. With respect to claim 10, Applicant submits that claim 10 is allowable at least by virtue of its dependency.

Kanesawa

Claims 9 and 10 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kanesawa *et al.* (US 5,666,624). Applicant respectfully traverses and submits that Kanesawa fails to teach or suggest all the features of these claims.

Applicant submits that Kanesawa fails to suggest at least the feature of the claimed fixing device, in which the nip pressure in the nip portion is *distributed along the nip portion* in a direction of transport of the recording medium such that pressure applied to the recording medium increases from an inlet side nip pressure at the inlet nip portion to an exit side nip pressure, which is higher than the inlet side nip pressure, at the exit side of the nip portion, as claimed.

For instance, the Examiner points to Figure 5 of Kanesawa in rejecting the previous form of claim 5. However, Figure 5 of Kanesawa teaches an image fixing device in which an endless belt 15 is stretched by three support rolls 12, 13 and 14, and a pressure roll is provided downstream of a pressure applying member in a rotational direction of the heating and fixing roll. *See Kanesawa at col. 10, lines 8-29 and Fig. 5.* Such an arrangement as taught by

Kanesawa does not disclose a pressure distribution along the nip portion, as illustrated, e.g., at Fig. 10 of the present application, wherein the nip pressure in the nip portion is distributed along the nip portion in a direction of transport of the recording medium such that pressure applied to the recording medium increases from an inlet side nip pressure at the inlet nip portion to an exit side nip pressure, which is higher than the inlet side nip pressure, at the exit side of the nip portion.

Accordingly, reconsideration and withdrawal of the rejection of claim 9 is respectfully requested. Applicant submits that claim 10 is allowable at least by virtue of its dependency.

Claim Rejections - 35 U.S.C. § 103

Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Tsukamoto (US 6,148,169) in view of Kadokura *et al.* (US Pub. 2003/0039913) and in view of either Goto *et al.* or Kanesawa *et al.*

Applicant submits that none of Tsukamoto, Kadokura, and Goto or Kadokura, whether taken alone or combined, teach or suggest *at least* the features the nip pressure in the nip portion is distributed along the nip portion in a direction of transport of the recording medium such that pressure applied to the recording medium increases from an inlet side nip pressure at the inlet nip portion to an exit side nip pressure, which is higher than the inlet side nip pressure, at the exit side of the nip portion, as recited by claim 9.

For instance, Tsukamoto teaches a fixing device in which a stable discharge region A is formed between a heat roller 2 and paper P, such that a bias voltage applied from bias roller 6 to

aluminum roller 3 sets up a preselected potential difference between roller 6 and metallic roller 9. *See* Tsukamoto at col. 5, lines 32-53 and Fig. 2. However, the modification of the illustrative embodiment depicted in Figure 5 of Tsukamoto and relied upon by the Examiner merely teaches a nip between heat roller 2 and belt 12 having a “far greater” width than the nip between heat roller 2 and press roller 8 for “high speed fixation”. *See* Tsukamoto at col. 7, lines 24-37.

On the other hand, Kadokura teaches an image forming process in which a pressure pad is used as a pressure member, and a nip between a heat fixing roller and an endless belt, which is produced with a pressure pad, ranges from 3 to 12 mm. *See* Kadokura at paragraph 43-44 and Fig. 1. However, neither Tsukamoto nor Kadokura suggest the nip pressure in the nip portion is distributed along the nip portion in a direction of transport of the recording medium such that pressure applied to the recording medium increases from an inlet side nip pressure at the inlet nip portion to an exit side nip pressure, which is higher than the inlet side nip pressure, at the exit side of the nip portion.

Further, Applicant submits the above arguments with respect to Goto and with respect to Kanesawa are likewise applicable to this ground of rejection. Thus, even assuming the Examiner’s asserted motivation to combine Tsukamoto, Kadokura, and Goto, or Tsukamoto, Kadokura, and Kanesawa, is proper, the resulting combination would in neither case teach or suggest at least the features of the nip pressure in the nip portion is distributed along the nip portion in a direction of transport of the recording medium such that pressure applied to the recording medium increases from an inlet side nip pressure at the inlet nip portion to an exit side

nip pressure, which is higher than the inlet side nip pressure, at the exit side of the nip portion, as claimed.

Reconsideration and withdrawal of the rejection of claim 9 is requested. Applicant submits that claim 10 is allowable at least by virtue of its dependency.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Brian K. Shelton
Registration No. 50,245

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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CUSTOMER NUMBER

Date: **February 2, 2007**